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09/865,575	05/29/2001	Yukie Nakano	109639	3682

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EXAMINER
THOMAS, ERIC W

ART UNIT	PAPER NUMBER
2831	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	09/865,575	Applicant(s)	NAKANO ET AL.
Examiner	Eric W Thomas	Art Unit	2831

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM

### THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1) Responsive to communication(s) filed on 26 February 2002.  
 2a) This action is FINAL. 2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

4) Claim(s) 1-19 is/are pending in the application.  
 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-15 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.  
 12) The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1.) Certified copies of the priority documents have been received.  
 2.) Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.  
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.  
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.

4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-15, drawn to a capacitor, classified in class 361, subclass 306.3.
  - II. Claims 16-19, drawn to a method of forming a capacitor, classified in class 156, subclass 89.12.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can form a resistor. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Joel Armstrong on 5/9/02 a provisional election was made WITH traverse to prosecute the invention of invention I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action.

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Claims 16-19 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

**Priority**

6. Acknowledgment is made of applicant's claim for foreign priority under 35

U.S.C. 119(a)-(d).

**Specification**

7. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Applicant uses comprises in the abstract.

8. The lengthy specification has not been checked to the extent necessary to

determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 5-6, the limitation, "in dielectric particles constituting said dielectric layers" is confusing. It is suggested to applicant to delete this limitation and add, --the dielectric layers comprise particles wherein—after "wherein" on line 3.

Claim 5, lines 2-3, the limitation, "said internal electrode layer" is confusing.

Which one of the plurality of electrode layers?

Claim 6 lines 2-3, the limitation, "said internal electrode layer" is confusing.

Which one of the plurality of electrode layers?

Claim 7 lines 2-3, the limitation, "a thickness of said dielectric layer" is confusing.

Which one of the plurality of dielectric layers?

Claim 8 lines 2-3, the limitation, "a thickness of said dielectric layer" is confusing.

Which one of the plurality of dielectric layers?

Claim 9 lines 2-3, the limitation, "a thickness of said dielectric layer" is confusing.

Which one of the plurality of dielectric layers?

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Claim 10 lines 2 & 5-6, the limitation, "said dielectric layer" is confusing. Which one of the plurality of dielectric layers?

Claim 11 lines 2 & 5-6, the limitation, "said dielectric layer" is confusing. Which one of the plurality of dielectric layers?

Claim 14 line 2, the limitation, "said dielectric layer" is confusing. Which one of the plurality of dielectric layers?

Claim 14 lines 6-7 is not in proper Markush format. "Is selected from the group consisting of"

Claim 15 line 2, the limitation, "said dielectric layer" is confusing. Which one of the plurality of dielectric layers?

Claim 15 lines 6-7 is not in proper Markush format. "Is selected from the group consisting of"

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in–

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or  
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

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12. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Inomata et al. (US 6,205,014).

Regarding claim 1, Inomata et al. disclose a multilayer ceramic capacitor comprising internal electrode layers and dielectric layers, wherein the dielectric layers comprise particles, wherein an average particle diameter ( $r$ ), in a direction parallel with the internal electrode layers is larger than a thickness ( $d$ ) of said dielectric layer (see col. 3 lines 15-23).

Regarding claim 2, as seen in col. 3 lines 15-23, Inomata et al. disclose wherein a ratio ( $R/d$ ) between said average particle diameter ( $r$ ) and the thickness ( $d$ ) of the dielectric layers satisfies  $1 < R/d < 3$ .

Regarding claim 3, Inomata et al. disclose a main component of the internal electrode layers is Ni (col. 3 lines 24-27).

Regarding claim 4, Inomata et al. disclose a main component of the internal electrode layers is Ni (col. 3 lines 24-27).

13. Claims 1-4, 7-11, 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Nomura et al. (US 5,319,517).

Nomura et al. disclose a multilayer ceramic capacitor comprising internal electrode layers and dielectric layers, wherein the dielectric layers comprise particles, wherein an average particle diameter ( $r$ ), in a direction parallel with the internal electrode layers is larger than a thickness ( $d$ ) of said dielectric layer (see col. 1 lines 60-65 & col. 5 lines 62-64).

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Regarding claim 2, as seen in col. 1 lines 60-65 & col. 5 lines 62-64, Nomura et al. disclose wherein a ratio (R/d) between said average particle diameter (r) and the thickness (d) of the dielectric layers satisfies  $1 < R/d < 3$ .

Regarding claim 3, Nomura et al. disclose a main component of the internal electrode layers is Ni (col. 2 lines 50-52 lines 24-27).

Regarding claim 4, Nomura et al. disclose a main component of the internal electrode layers is Ni (col. 2 lines 50-52 lines 24-27).

Regarding claim 7, Nomura et al. disclose the dielectric layers can have a thickness less than 3  $\mu\text{m}$  (see col. 1 lines 60-65).

Regarding claim 8, Nomura et al. disclose the dielectric layers can have a thickness less than 3  $\mu\text{m}$  (see col. 1 lines 60-65).

Regarding claim 9, Nomura et al. disclose the dielectric layers can have a thickness less than 3  $\mu\text{m}$  (see col. 1 lines 60-65).

Regarding claim 10, Nomura et al. disclose the dielectric layer comprises the dielectric particles and a grain boundary phase, and an area ratio of the grain boundary phase in a section of the dielectric layer is 2 % (see col. 4 lines 6-10).

Regarding claim 11, Nomura et al. disclose the dielectric layer comprises the dielectric particles and a grain boundary phase, and an area ratio of the grain boundary phase in a section of the dielectric layer is 2 % (see col. 4 lines 6-10).

Regarding claim 14, Nomura et al. disclose the dielectric layers comprise dielectric particles, a grain boundary and grain boundary phase comprises a segregation phase that consists of Mn, Y, V and W.

Regarding claim 15, Nomura et al. disclose the dielectric layers comprise dielectric particles, a grain boundary and grain boundary phase comprises a segregation phase that consists of Mn, Y, V and W.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a)..

16. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inomata et al. (US 6,205,014).

Regarding claim 5, Inomata et al. disclose the claimed invention except for the internal electrodes comprising Ni having Fe segregated in the internal electrodes. Ni electrodes having Fe segregated in the internal electrodes are known in the art. It would have been obvious to one having ordinary skill in the art at the time the invention

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was made to form the internal electrodes of Inomata et al. of a nickel material having Fe segregated in the internal electrode, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 6, Inomata et al. disclose the claimed invention except for the internal electrodes comprising Ni having Fe segregated in the internal electrodes. Ni internal electrodes having Fe segregated in the internal electrodes are known in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the internal electrodes of Inomata et al. of a nickel material having Fe segregated in the internal electrode, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

17. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Inomata et al. (US 6,205,014) in view of Iguchi et al. (US 5,977,006).

Inomata et al. disclose the claimed invention except for the dielectric particles having a core-shell structure.

Iguchi et al. teach the use of a core-shell structure dielectric particles for dielectric layers in multilayer ceramic capacitors. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the ceramic material of Iguchi et al. in the capacitor of Inomata et al., since such a modification would provide a dielectric having a high dielectric constant with a stable temperature characteristic.

Regarding claim 13, Inomata et al. disclose the claimed invention except for the dielectric particles have a core-shell structure. Iguchi et al. teach the use of a core-shell structure dielectric particles for dielectric layers in multilayer ceramic capacitors. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the ceramic material of Iguchi et al. in the capacitor of Inomata et al., since such a modification would provide a dielectric having a high dielectric constant with a stable temperature characteristic.

#### *Conclusion*

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2001/0055193 – discloses a capacitor having dielectric layers formed from particles having a shell-core structure.

5,134,540 – discloses a capacitor having dielectric layers formed from particles. 4,654,750 -- discloses a capacitor having dielectric layers formed from particles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric W Thomas whose telephone number is (703) 305-0878. The examiner can normally be reached on Monday-Friday 6:00 AM-6:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 703-308-3682. The fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 305-3432

for regular communications and (703) 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ewt  
May 13, 2002

*Dean A. Beechard 5/16/02*  
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